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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,311	01/05/2005	Michel Paul Barbara Van Bruggen	NL 020663	2504
24737 7590 06/28/2007 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510				
			EXAMINER VIJAYAKUMAR, KALLAMBELLA M	
			ART UNIT 1751	PAPER NUMBER
			MAIL DATE 06/28/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/520,311	<b>Applicant(s)</b> VAN BRUGGEN ET AL.	
	<b>Examiner</b> Kallambella Vijayakumar	<b>Art Unit</b> 1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 January 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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#### **DETAILED ACTION**

This application is a 371 of PCT/IB03/02874 filed 06/25/2003. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. The preliminary amendment filed 01/05/2005 has been entered. Claims 1-10 are currently pending with the application.

Request under Rule 48 correcting inventorship filed 01/18/2007 by including Andreas Krell and Thomas Hutzler is acknowledged.

The examiner has considered the IDS filed 01/05/2005.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 10 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 recites the limitation "method according to claim-6" in Line-1. There is insufficient antecedent basis for this limitation in the claim.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1-7 and 9-10 are rejected under 35 U.S.C. 103(a) as obvious over Castro et al (US 2003/0125189).

Castro et al teach a polycrystalline translucent aluminum oxide ceramic (PCA) material having an average grain size of no greater than 1.0 micron and a Contrast Ratio value of less than about 0.7 (Abstract). PCA possessed substantially zero porosity, had a density greater than about 99.8% theoretical, and was made by HIPing the component mixture (Para 0006, 0059) containing high purity ceramic material with a particle size no greater than 1.0 micron (Para 0034-35). The transmittance was at least about 40% at 550 nm and ~50% at 650 nm (0046, Fig-10). The composition contained up to about 0.5 wt% of the sintering aids such as MgO, Y<sub>2</sub>O<sub>3</sub>, ZrO<sub>2</sub>, HfO<sub>2</sub> and CaO that can be used either singly or in a combination (0060). The prior art further teaches using the composition in a sodium vapor lamp envelope (Discharge lamp) (Claim-12).

The prior art is silent about the relative density of the composition being greater than 99.95%.

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However, the prior art teaches the PCA composition to be with substantially zero porosity and a relative density greater than about 99.8%. The prior art further teaches making the composition by blending the component mixture containing sintering aids, CIPing the blend, forming a green body, calcining the green body in a multistep heating process to attain a density of 96-98% and then HIPing under inert atmosphere by varying a combination of temperature and pressure (Para 0055-0059) to obtain a fully transparent material. It would have been obvious to a person of ordinary skill in the art to optimize the process conditions of Castro et al to attain a non porous, high density and transparent PCA by routine experimentation with reasonable expectation of success, and generally, differences in concentration or temperature or pressure or density will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature or pressure or density is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). With regard to the instant claimed optical properties of PCA, the prior art composition is substantially same as that taught by the applicants, and having same utility as enclosures for high-pressure discharge lamps, and the applicant has the burden of showing by tangible evidence that they are not." In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990); see also In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971).

With regard to claims 2-3 and 6, the prior art teaches PCA composition containing up to about 0.5 wt% of the sintering aids such as MgO, Y<sub>2</sub>O<sub>3</sub>, ZrO<sub>2</sub>, HfO<sub>2</sub> and CaO that can be used either singly or in combination (0060), and the instant claimed ranges lie within this prior art range, and in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

With regard to claims 4-5, it would be obvious to a person of ordinary skill in the art to substitute Y<sub>2</sub>O<sub>3</sub> in the PCA of Castro et al with other rare-earth elements including La and Er as functional equivalents with reasonable expectation of success, because it was well known at the time of the disclosure of the invention by the applicants (See Van Reine et al, US 4,699,774, Abstract, Cl-1, Ln 6-20)

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to add these elements to PCA for high-discharge lamps to benefit from dense sintered material with regular crystal size distribution.

With regard to claim 7, the prior art teaches using the PCA as a sodium vapor lamp envelope.

With regard to method in claims 9-10, the prior art teaches making the PCA composition by blending the component mixture containing high purity alumina with a particle size less than a micron and sintering aids, CIPing the blend forming a green body, calcining the green body in a multistep heating process to attain a density of 96-98%, and then HIPing under inert atmosphere by varying a combination of temperature and pressure (Para 0055-0059) and the examiner asserts that the prior art composition will be similar to that produced by the instant claimed method steps.

2. Claim 8 is rejected under 35 U.S.C. 103(a) as obvious over Castro et al (US 2003/0125189) in view of Yamamoto et al (US 6,417,127).

The disclosure on the composition and making of PCA as set forth in rejection-1 under 35 USC 103(a) is herein incorporated.

The prior art fails to teach the discharge lamp containing a metal halide per the claim.

In the analogous art, Yamamoto et al teach using the PCA as outer tube of a metal halide or sodium vapor lamp (Abstract, Cl-1, Ln 6-15).

It would have been obvious to a person of ordinary skill in the art to use the PCA of Castro et al as envelope of a metal halide lamp with reasonable expectation of success because Yamamoto et al teach the transparent PCA applications in a genus of lamps containing a metal halide and sodium vapor lamp that encompasses the species of sodium vapor lamp of Castro et al, and the combined prior art teaching is suggestive of the claimed discharge lamp.

3. Claims 1-10 are rejected under 35 U.S.C. 103(a) as obvious over Yamamoto et al (US 6,417,127).

Yamamoto teaches a translucent sintered PCA with at least one characteristic features that (1) a mean particle size of crystal particles formed inside the ceramic is not larger than 1.0 micron, (2) a mean aspect ratio thereof is from 1.0 to 1.5, (3) a density thereof is substantially a theoretical density,

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(4) a light transmittance through its thickness of 1 mm is at least 50%, (5) a mean facet length of crystal particles formed inside the ceramic is not longer than a maximum wave length of the light (Abstract).

The PCA contained 0.02-2.0 mol % of oxide of metal belonging to IIIA and/or IVA group (excluding Ti) such as oxides of Y, Yb, Zr, Sc, La and Lu and Mg. The PCA further had a density of at least 3.98 g/cm<sup>3</sup>, a mean crystal particle size of 0.3-1.0 micron, its bending strength of at least 1900 MPa and its Vickers hardness of at least 850 at 1000.degree. C. (CI-4, Ln 1-54; CI-7, Ln 13-18). The composition was formed from a slurry, molding the composition and HIPing at temperatures greater than 1200C (Tables 1-2 and 5-6).

The prior art is silent about the optical properties per the claim-1, fails to teach ranges per claims 3, and 5-6, and addition of Er per claim-4.

With regard to the instant claimed optical properties of PCA, the prior art composition is substantially same as that taught by the applicants, and having same utility as enclosures for high-pressure discharge lamps, and the applicant has the burden of showing by tangible evidence that they are not." In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990); see also In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971).

With regard to claims 2-3 and 5-6, the prior art teaches the addition of 0.02-2.0 mol % of oxide of metal belonging to IIIA and/or IVA group (excluding Ti) such as oxides of Y, Yb, Zr, Sc, La, Lu and Mg, and Similarly, a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (Court held as proper a rejection of a claim directed to an alloy of "having 0.8% nickel, 0.3% molybdenum, up to 0.1% iron, balance titanium" as obvious over a reference disclosing alloys of 0.75% nickel, 0.25% molybdenum, balance titanium and 0.94% nickel, 0.31% molybdenum, balance titanium.).

With regard to claim 4, it would be obvious to a person of ordinary skilled in the art to substitute La<sub>2</sub>O<sub>3</sub>/Y<sub>2</sub>O<sub>3</sub> in the PCA of Yamamoto et al with other rare-earths including Er as functional equivalents with reasonable expectation of success, because it was well known at the time of the disclosure of the invention by the applicants (See Van Reine et al, US 4,699,774, Abstract, CI-1, Ln 6-20) to add this

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element to PCA for high-discharge lamps to benefit from dense sintered material with regular crystal size distribution.

With regard to claims 7-8, the prior art teaches using the PCA in a sodium vapor lamp or a metal halide lamp (CI-1, Ln 6-15).

With regard to method in claims 9-10, the prior art teaches making the PCA composition by blending the component mixture containing high purity alumina with a particle size of 0.22 micron and sintering aids, CIPing the blend, calcining in a multistep heating process and then HIPing under inert atmosphere by varying a combination of temperature and pressure forming a dense transparent body, and the examiner asserts that the prior art composition will be similar to that produced by the instant claimed method steps.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 571-272-1324. The examiner can normally be reached on 8.30-6.00 Mon-Thu, 8.30-5.00 Alt Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas McGinty can be reached on 571-272-1029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KMV/  
June 18, 2007.

  
DOUGLAS MCGINTY  
SUPERVISORY PATENT EXAMINER

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